

# Market Transformation? Resource Acquisition? Not Really. It's Market Share!

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## ABSTRACT

For the first time, energy-efficiency programs are being driven by four social drivers: high energy costs, electricity transmission constraints, climate change, and energy security. As a result, energy-efficiency implementation contractors are being asked to design programs that satisfy both resource acquisition and market transformation goals. Given current methods for implementing the two goals, this would appear to be impossible; the implementation methods for resource acquisition, primarily rebates, cannot be relied upon to create the lasting changes required by market transformation, while the implementation methods of market transformation, primarily advertising and supply management, are typically too slow to satisfy resource-acquisition goals.

The authors argue that resource acquisition and market transformation have no exclusive claim on implementation tactics in the context of current program drivers. They are simply products of historical and political circumstances, and these have now changed.

If administrators and implementers refocus their efforts onto the goal that traditional product-marketers have always pursued, i.e., growth in market share, implementation methods that serve both goals in a single program can be found. The authors use traditional product-life-cycle marketing principles to show how this can be done. Program administrators must give implementers more time and marketing flexibility to build market share. If a program begins with cash incentives, permit their reduction or elimination as the efficient product gains widespread acceptance, but continue to build market share with other tactics such as advertising and stocking promotions.

## Our Traditional Goals, Today's Needs, and an Alternative Goal

Until recently the energy-efficiency program industry has thought of its implementation programs as having one of two goals: either resource acquisition or market transformation. In the last few years, however, implementation contractors have received requests for proposals (RFPs) for energy-efficiency programs that require achievement of *both* types of goals with a single program. In spite of the dual goals, these RFPs usually specify actual targets *only* for resource-acquisition. They require specific kilowatt-hour savings and kilowatt reduction goals and require them to be met within a specified time frame. The RFPs do not say much, if anything, about market transformation. Because resource acquisition and market transformation have different implementation methods, this has left implementation contractors with the challenge of designing programs that can achieve both goals.<sup>1</sup> We have observed that contractors usually design to the resource acquisition goal, and the implementation award is made on that basis. The market transformation goal is, in effect, ignored.

We believe that this dual-goal objective arises from a unique convergence of political drivers on the national social agenda. For the first time, high energy-costs, electricity-transmission constraints,

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<sup>1</sup> A paper on market transformation by Ken Keating, et al, was one of the first to point out the confusion caused by *not* separating program *goals* from program *implementation methods* (Keating, et al 1998). The distinction is a very important one for RFP writers and program designers and applies to resource acquisition as well as market transformation.

climate change, and energy security have all attained traction in the public's mind. It takes both goals to satisfy these four drivers.

It is important, therefore, that our energy-efficiency programs take both goals seriously—and simultaneously. We believe both goals can be achieved with a single program if we look at the two goals and their implementation methods from an alternative perspective. This paper presents our basis for this belief and proposes the alternative. We start with two considerations.

First, the fact that the *implementation methods* for the two goals differ is fundamental. Resource-acquisition goals consist of time-dependent kilowatt-hour savings and kilowatt reductions, and their implementation methods often rely on customer rebates. The goals have a time deadline, often three years. The market-transformation goal consists of creating a permanent preference in customers' minds for the energy-efficient choice. Its implementation methods may also begin with customer incentives, usually in the form of price markdowns or buydowns, but rely more heavily from the beginning on a combination of education and promotional efforts targeted on upstream sales channels plus advertising. Market transformation goals require a longer time to achieve than is specified for resource acquisition.

Second, historical and political circumstances have driven the emergence of resource acquisition and market transformation as alternative goals. They are products of the circumstances of their time, and this has kept us from recognizing that they are not the results of a well thought-out, integrated approach to marketing energy efficiency.

The industry is still looking at our two traditional goals as mutually exclusive and as the only goals available. This is confusing the calls for program design and implementation. We believe that the current unprecedented widespread acceptance of energy-cost, electricity-reliability, environmental, and security needs constitutes a new set of circumstances that calls for us to look at our goals and marketing efforts in a new way.

We need a different perspective. We believe that perspective calls for recognizing that we are marketers in the broadest sense of the word. When we design energy efficiency programs, we should be integrating the full range of strategies, tactics and success indicators that most commercial marketers use to *build and sustain market share for new products throughout their life cycle*. For a goal, we call upon policy-makers and implementers to require—and provide for—continued growth, followed by stability, in energy-efficiency *market share*.

Before describing this new perspective in more detail, we will review the circumstances that drove the emergence of resource acquisition and market transformation as goals. The purpose of this brief history is to show that the resource acquisition and market transformation goals are not the result of a well thought-out, integrated marketing approach for energy efficiency. Rather, they are the products of historical and political circumstances.

## **Emergence of the Resource-Acquisition and Market-Transformation Goals**

The resource acquisition and market transformation goals did not emerge abruptly, nor did one vanish when the other appeared. They emerged over time and co-exist today.<sup>2</sup>

The first oil embargo by the Organization of Petroleum Exporting Countries in 1973 created an energy price shock that led Congress in 1978 to pass the National Energy Conservation and Policy Act (NECPA) (DOE 1980). Among other provisions, NECPA required large investor-owned utilities to offer energy-conservation audits for their residential customers as a way to educate them in ways to reduce their energy costs. This led to the U.S. Department of Energy's Residential Conservation Service (RCS)

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<sup>2</sup> This overview of how the two goals has been developed from information in the sources cited, Brown 2006, and the authors' personal participation in (a) design of DOE's Residential Conservation Service Program, (b) EEI's conceptualization of DSM concept, (c) early contractor support to the Northwest Power Planning Council.

(DOE 1980). The RCS had a goal of helping residential households reduce the use all types of energy, especially fuel oil and electricity (which was generated by fuel oil more frequently at that time than it is today). NECPA was followed in 1978 with the Public Utility Regulatory Policies Act (PURPA) which ordered states to create energy plans and promoted the benefits of increased conservation of electric energy and load-management techniques.

### **Emergence of Resource Acquisition**

PURPA also required that electric utilities purchase power from qualifying non-utility power-production facilities and pay “avoided cost” for this power as a means to reduce energy cost and dependence on foreign oil imports (EIA 2000). In 1980, under the driver of a projected shortage of hydropower from the Columbia River system of dams, Congress passed the Northwest Power Act. This Act defined the conservation of electricity as an energy resource that could be purchased by utilities in lieu of new electrical generation (Eckman, Benner & Gordon 1992). These two acts—driven by circumstances of high energy costs, energy security, and energy-supply constraints—opened the door to viewing electricity conservation as an energy resource. Some gas distribution companies bought into conservation to combat, or take advantage of, fuel switching, and for customer-relations purposes.

The idea of a utility purchasing power energy conservation contributed to the idea of integrated resource planning (IRP) and its requirement that utilities acquire conservation as an electricity resource if it were more cost-effective in the long term than building new electricity-generating facilities. Many of the early energy-efficiency programs emerged from the IRP process. From IRP came the concept of “*resource acquisition*.” In the case of electric energy, the purchase of conservation became the purchase of “negawatts.”<sup>3</sup> Resource acquisition continues to this day to refer to the purchase of load reduction as an alternative to new kilowatt and kilowatt-hour supplies.

During the early 1980s, the Electric Edison Institute (EEI) sought a way to ease the negative public-relations impact of high electricity prices and simultaneously increase the sales of baseline electricity. EEI conceived of a marketing concept that eventually came to be known as demand-side management (DSM). The Electric Power Research Institute (EPRI) developed the concept in 1984 and promoted it to its members. For EEI and EPRI, DSM was designed to alter the shape of a utility’s daily and seasonal load pattern in ways that worked to the benefit of both the utility and its customers, i.e., avoid high-cost on-peak sales and fill valleys with increased sales of lower cost base-load power. EPRI acknowledged that DSM programs would include buying “strategic conservation” (EPRI 1984).

### **Emergence of the Market Transformation Goal**

The Reagan administration’s strong support for open-market principles in the 1980’s led to the Energy Policy Act of 1992 (EPACT). EPACT required utilities to provide transmission access to other power producers to promote wholesale electricity competition and enabled states to require retail competition in both the electric and gas distribution industries. Following California’s lead, many states did so. The resulting deregulation of the electricity-supply industry was driven by the belief that it would reduce the price of electricity. In states where deregulation of electricity and gas supply went into effect, utility companies restructured and regulators believed that the resulting “distribution-only utilities” no longer had a need for integrated resource planning to purchase the most cost-effective energy source. Funding for DSM programs shrank drastically during the late 1990s.

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<sup>3</sup> The term “negawatts” was coined by Avory Lovins in a 1989 speech titled, “The Negawatt Revolution; Solving the CO<sub>2</sub> Problem” delivered at the Green Energy Conference of the Canadian Coalition for Nuclear Responsibility. It can be accessed at [www.ccnr.org/amory.html](http://www.ccnr.org/amory.html).

But in some deregulated states, the restructuring laws included a public benefits charge—a surcharge on electricity rates—to continue the funding of energy-conservation programs and other energy-related activities. This gave new life to some energy-efficiency programs. But deregulation had replaced IRP and resource acquisition as the policy for lowering energy costs, and conservation advocates now faced the question, what was the justification for continuing energy-efficiency programs?

In 1992, the Pacific Northwest was still concerned about reducing energy usage and still charged by the Northwest Power Act to buy conservation. Energy conservation remained very much alive in the region. That year, three advocates from the Northwest, Tom Eckman of the Northwest Power Planning Council (as it was known then), Nancy Benner of Portland Energy Conservation, Inc., and Fred Gordon of Pacific Energy Associates presented a paper to the 1992 Summer Study of the Association for an Energy-Efficient Economy (ACEEE) entitled, “It’s 2002, Do You Know Where Your DSM Policies and Programs Are?” (Eckman, Benner & Gordon 1992) This paper is generally cited as the source of the market-transformation concept.

Eckman, Benner, and Gordon reviewed the creation of efficiency standards and codes by the National Appliance Energy Conservation Act of 1987 (NAECA); the building energy-design guidelines of the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE); and the Model Energy Code of the Council of American Building Officials (CABO); each of which set improved efficiency levels for the marketplace. They observed that these standards “were generally set at levels that were ‘cost-effective’ only from the consumer’s perspective or were ‘politically acceptable’” The standards “did not consider whether they captured all of the savings that were cost-effective from the servicing utility’s perspective, let alone from society’s perspective, considering environmental externalities.” They did not, in most cases, achieve the least-cost energy supply of the IRP days. They were simply a “baseline” based on expediency at the time. They were not enough.

Eckman, Benner, and Gordon also observed that programs designed under the resource-acquisition goal were not explicitly designed to secure transformation of an entire market, but rather were designed to secure site-specific efficiency improvements.

They urged the “deliberate coordination of government and utility efforts to effect market transformation at the ‘wholesale level.’” They advocated that, “by adopting a deliberate strategy of investing in energy efficiency at levels that exceed what is economical for consumers, but that are cost-effective for the utility, a more rapid market transformation can be stimulated than by simply promoting adoption of standards or codes that satisfy consumer economic criteria.”<sup>4</sup>

In response to the loss of DSM and IRP, market transformation offered a new justification for continuing public promotion of energy conservation. It continued to be driven nationwide by reducing energy cost, and now also had a constrained energy-supply driver in the Northwest.

But what is market transformation? The concept needed an explicit definition before public agencies could issue unambiguous RFPs to implement it. This question led to an outpouring of studies, conference papers, and definitions.<sup>5</sup> Ken Keating et al., in a paper delivered to the 1998 ACEEE Summer Study, identified nine definitions (Keating et. al. 1998). Keating and his co-authors examined the definitions and singled out a definition that Jeff Schlegel and colleagues had offered (Schlegel et al. 1997). Schlegel, et al, identified four semantic components that seemed to be prevalent in the definition.

- “Strategic efforts by utility and other organization to intervene in the market,
- causing beneficial, lasting changes in the structure or function of the market, and/or practices,

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<sup>4</sup> They did not, however, advocate displacing resource-acquisition programs with market-transformation programs. They did not consider the two energy efficiency goals to be mutually exclusive.

<sup>5</sup> In a 1995 issue of the Association of Energy Services Professionals newsletter, *Strategies*, Shel Feldman, who wrote extensively about the subject, attributed “the most succinct, clearest, and least controversial definition” to Ralph Prah: “A big warm fuzzy beast that everybody likes, but nobody can identify.”

- leading to increases in the adoption of energy efficient products, services, and/or practices, and
- with the changes in the market being *lasting* changes, meaning the changes last beyond any revision to or discontinuation of the intervention.” (Italics in original.)

Keating et al. pointed out that much of the confusion arose from not specifying whether the concept was a *goal* or a *method of conservation delivery*, i.e., an implementation strategy. Keating et al. also observed that most of the definitions specified that once transformation was achieved, there would no longer be a need for public support.

### **Emergence of the Simultaneous Requirement for Both Goals and the Need for an Alternative Perspective**

For most of the decade of the 1990s and early into the first decade of the 2000s, most program-implementation RFPs specified goals that were either resource acquisition or market transformation, but not both. Then in the first decade of the 2000s, implementing contractors began to see RFPs that had both market-transformation and resource-acquisition goals but that specified performance targets that required resource-acquisition methods. That is, the program was to satisfy both goals, but the issuer appeared to require resource-acquisition methods.

By this time, the delivery method for resource acquisition was widely accepted: offer rebates to reduce the price barrier for energy-efficient products, and keep using rebates until the acquisition goal was achieved. Then, maybe, the program could stop. The delivery methods for market transformation were less clear, but in at least one region of the country they consisted of promoting over an extended period wholesale supply of efficient products plus consumer advertising. Wholesale or retailer cash incentives were offered but not in the form of consumer rebates.

We believe these RFPs once again reflect historical and political circumstances. *Four* drivers have captured national attention: high energy costs, electricity-transmission constraints, climate change, and dependence on foreign oil. These four drivers provide justification for *both* resource acquisition and market transformation. But the RFPs for programs to meet these social needs through energy efficiency have left the critical decisions on *how* to meet them up to the implementation contractor and, we believe, have not provided for the marketing strategy necessary to do so. To achieve both of these goals, we believe policy makers, administrators and implementers need an alternative perspective—one that leads to a more comprehensive view of the implementation methods required.

## **A More Comprehensive Goal and Methods Paradigm**

### **Traditional Marketing Methods for a Product Life Cycle**

Textbooks on traditional marketing describe promotion methods for introducing new products to the market, or for introducing existing products to new markets. Often, they specify an initial tactic such as a price discount to attract the consumer’s attention to a new product and encourage him or her to buy it. Examples of price-discount activities include free samples, instant-rebate coupons, mail-in rebate coupons, and manufacturer-sponsored mark downs (Pride & Ferrell 1987). The goal of these methods is to create market-share growth.

When (and if) market share reaches a certain level, marketing methods usually change. Advertising replaces price discounts. As competition enters the market, product managers may select new placement channels, change product features, change the features they advertise, or return temporarily to price discounts as needed to sustain or keep market share growing. Segment knowledge

plays a major role in extending sales into segments that initially were not attracted by the price discounts (Pride & Ferrell 1987, Morse 1998).

The goal of these tactics, and the metric by which private businesses usually measure marketing success, is growth in *market share*. Market share relates directly to the ultimate business goal of profit.<sup>6</sup> For the public energy-efficiency industry, market share relates directly to energy savings and demand reduction and all of the social benefits realized from them.

These three paragraphs summarize, in a highly oversimplified manner, the traditional approach to marketing a product during its life cycle. Price discounts often are used initially to “acquire” sales and market share, then other marketing methods are used to “continue and sustain” market-share growth.

### **An Alternative Perspective for Energy-Efficiency Programs**

What the industry calls resource-acquisition and market-transformation goals and methods are simply traditional marketing objectives and tactics used at different stages in the life of a product.<sup>7</sup> They are designed to ensure early, continued, and sustained growth in market-share. Market share is the key indicator of goal achievement. Price discounts are often used to attract early adopters and segments with a similar predisposition. At a certain level of market share (perhaps when the goal of resource-acquisition is achieved), marketing tactics may change to support a goal of continuing market share by attracting new segments, reinforcing early-adopter preferences, and defending against competition (a combination of market-transformation and periodic resource-acquisition goals). When market share reaches a level that the product manager considers a plateau of reasonable success, tactics shift again to sustain the plateau (the market-transformation goal).

Market-share growth becomes the principal performance indicator for resource-acquisition success. A market-share plateau, in combination with product-availability indicators indicates when the market is transformed.

This, in brief, is an alternative perspective—or paradigm—for energy-efficiency program design and implementation.

### **Implications**

Traditional marketing offers too many implications for multi-goal energy-efficiency marketing to illustrate them all in a paper such as this. We have singled out seven marketing features to illustrate the implications.<sup>8</sup>

- The product life cycle
- Flexibility
- The relevance of price discounts
- Social marketing
- The length of public support
- Types of technologies and public support
- Meeting two goals with one program.

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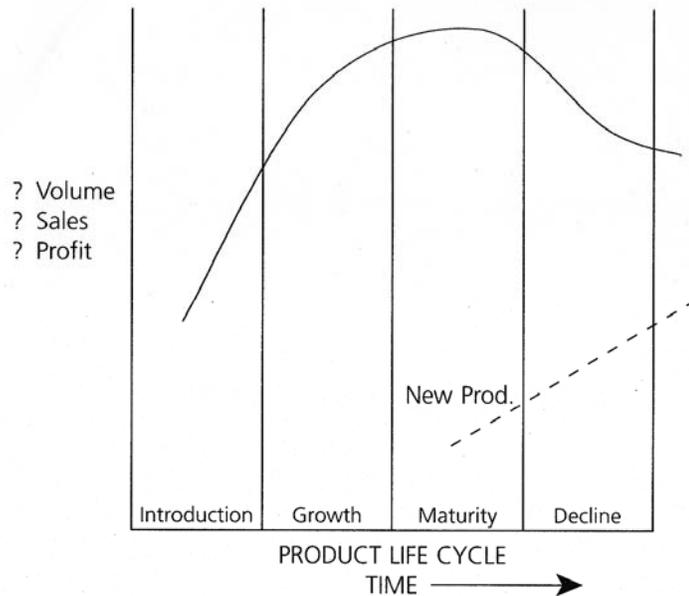
<sup>6</sup> We differentiate marketing success from business success, which is profit-oriented. Marketing success is just one component of business success.

<sup>7</sup> We use “product” as shorthand for product category, e.g., CFL. We do not use it as “brand.”

<sup>8</sup> These features are abstracted from Pride & Ferrell 1987 and Morse 1998.

## The Product Life Cycle

Traditional marketing recognizes that a product goes through a life cycle that looks something like the following (Pride & Ferrell 1987, Morse 1998).



Source: Morse 1998

**Figure 1.** Product Life Cycle

Marketing strategies and activities vary with the phase of a product's life. Although efficiency advocates are still trying primarily to achieve the growth of energy-efficient products in the marketplace, we may already be facing the eventual decline of one of our most valued products, the CFL. Some advocates are already claiming that it is an "interim" solution to the efficient-lighting challenge—that LEDs offer a new product solution that will replace CFLs in the next ten to fifteen years (Dowling 2008). Other products, e.g., T8 fluorescent lamps and electronic ballasts, are already mature products. Life-cycle marketing advises that we should be prepared to change our marketing strategies as products mature.

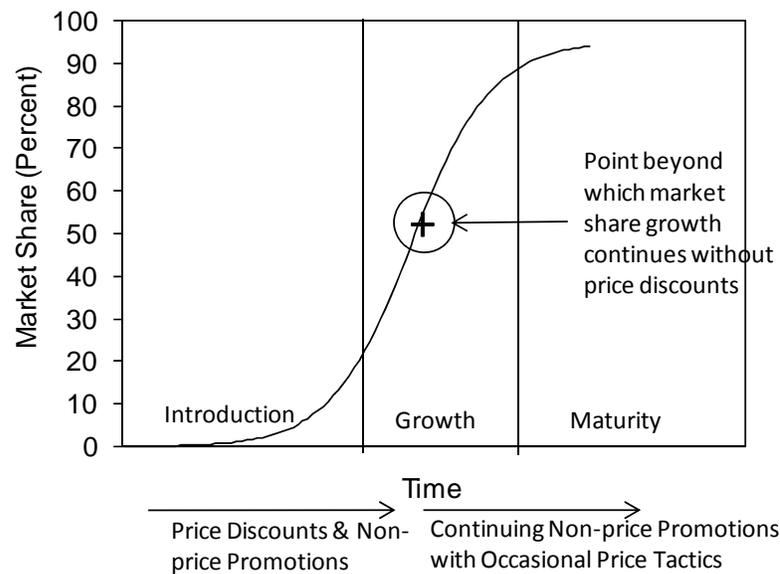
### Flexibility

There will be resource-acquisition situations in which programs are failing to acquire resources on schedule. Failure need not be an option. In such situations, the program administrator should be prepared for the implementer to propose changing either the marketing strategy or methods. This includes improving the technologies being promoted and the segments being targeted.

### The Relevance of Price Discounts

Price discounts may be part of a comprehensive product life-cycle strategy. The technologies in which we are interested at the beginning of the twenty-first century belong in the first three stages of life cycle: introduction (ground-source heat pumps), growth (CFLs in some regions), or maturity (T-8 lamps with electronic ballasts). Traditional marketing sometimes, but not always, uses price discounts for the introduction and early growth phases of a product's life. They can also be used later in a product's life to introduce a product to new segments or to meet a special need.

Figure 2 illustrates the use of price discounts in terms of life-cycle marketing.<sup>9</sup> Figure 2 is not intended to identify a specific market share for product take-off without discounts but to advise us to look for it during the growth stage, perhaps through trial-and-error or by asking wholesalers and retailers or by knowledge of the product take-off literature. Also, we must emphasize that price discounts are not always used to introduce a product, e.g., the hybrid auto. Products that have a clear, strong advantage over the products they would displace often are introduced without price discounts.



**Figure 2.** Product Life Cycle with Transition from Resource-Acquisition Tactics to Market-Transformation Tactics

### Social Marketing

In recent years, a number of advocates have been promoting the principles of social marketing as tools for promoting energy-efficient products and behavior (Nevius 2006, ESource & Summit Blue 2008). Social marketing is already grounded in traditional marketing principles. It adapts many of the methods of profit-oriented marketing to social goals. As such it deserves more attention at all stages of product life from those responsible for boots-on-the-ground efficiency marketing.

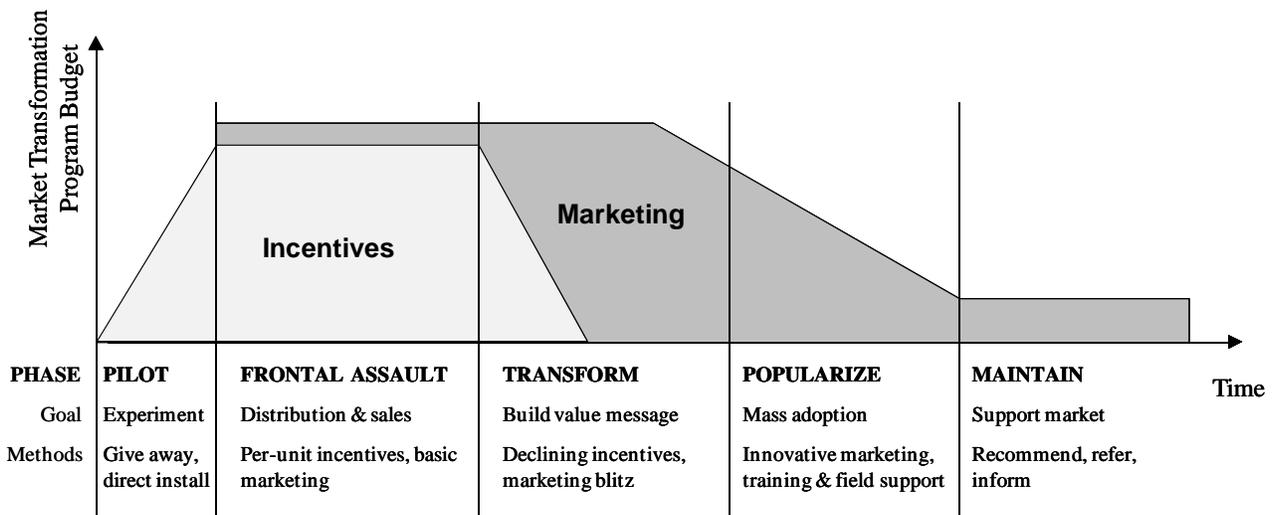
### The Length of Public Support

Perhaps the least popular implication of the market-share paradigm is its requirement for continued support for some types of products during their entire life. Marketing texts do not advocate discontinuing marketing at any level of market share; they advocate adjusting methods to maintain market share. Even for a product approaching the end of its life, marketing methods are available (Pride & Ferrell 1987, Morse 1998). As long as inefficient choices offer competition, why should we expect a market-transformation goal to require less?

A graphic used by Natural Resources Canada (NRC) in a 2005 presentation to Canada's ENERGY STAR and EnerGuide participants illustrated this implication (Wilkins 2005, 2008). Figure 3,

<sup>9</sup> Figure 2 blends concepts from the innovation-of-diffusion and product take-off literature to illustrate the authors' perspective on life-cycle marketing. As market share grows, there comes a point where the marketing content needs to change to avoid wasting public money (as is done in commercial marketing to avoid unnecessarily restraining profit).

adapted from the NRC presentation illustrates the on-going use of marketing and suggests that transforming the market for a product is a long-term process.



Source: Wilkins 2005

**Figure 3.** The Need for Continued Marketing<sup>10</sup>

The vertical axis of NRC’s graphic, labeled “Market Transformation Budget,” explicitly recognizes the need for continued public support for energy efficiency during a “maintain” phase. One may argue that the private sector will eventually take over the marketing. In some cases this will be the case, but not in all (unless energy costs rise to extreme levels). Certain types of technologies will always need public funding. Which types of technologies?

### Types of Technologies and the Length of Public Support

Many reading this will object that some products *do* succeed in sustaining market share without support from any source other than traditional private-sector brand marketing. The authors agree, but observe that this usually occurs when one technology is replacing another. Academics call this *product substitution*, e.g., electronic ballasts replacing magnetic ballasts. In all such cases that we have found, market transformation occurs when the technology of the replacing product so significantly improves the service provided by the replaced technology that the latter is no longer competitive.

The energy-efficiency industry, however, has a responsibility to promote the adoption of products that represent only an efficiency *upgrade* to an existing technology. The basic theory on which the product’s technology is based does not change (e.g., the closed Carnot thermodynamic cycle for air conditioning and refrigeration). Unless the price of energy becomes extreme, these types of technologies will always require public promotional support because their service improvement is marginal compared to the product’s function as a whole.

To illustrate this point, Table 1 provides examples of the types of technologies that the authors believe have the potential to transform the market and those that will require long-term public support. The shaded cells identify products/technologies that we believe will require long-term public support.

<sup>10</sup> We thank Tobin Galvin of Summit Blue and Anne Wilkins of NRC for providing this graphic. NRC designed the graphic showing incentives as the introductory marketing tactic; however, incentives are not always the optimal way to introduce a new product.

**Table 1.** Illustration of Market Transformation Potential for Selected Energy-Efficient Residential Products

Technology Replacement Type	Efficient Technology Example	Replaced Technology	Primary-Service Performance of Efficient Compared to Replacement	Current Pay-back Period (Years)	Feasible to Sustain High Market Share at Current Energy Prices without Continuing Public Marketing Support?	Feasible to Sustain High Market Share at Current Energy Prices by Codes or Standards?
<b>Residential Efficiency Measures</b>						
Substitution	• CFL	• Incandescent	Good/Fair	1-2	Yes	Yes
	• LED	• Incandescent • CFL	To be determined	N.A.	Yes	Yes
Upgrade of Existing Technology	• Low-flow shower-head	• Non-flow-restricted shower-head	Fair	1-2	No	Yes
	• ENERGY STAR room AC	• Non-ENERGY STAR room AC	Equal to slightly superior	2-3	No	Yes, but not for most efficient
	• ENERGY STAR clothes washers	• Non-ENERGY STAR clothes washers	Good-Superior	4-6	No	Yes, but not for most efficient
<b>Non-Residential Efficiency Measures</b>						
Substitution	• T8/T5 lamps / electronic ballast	• T12 lamp / mag. ballast; metal halide & mercury vapor fixtures	Equal	2-3	Yes	Yes
	• LED exit sign	• Exit sign with CFL or incandescent	Equal	2-3	Yes	Yes
	• Ground source heat pump for space heating	• Electric-resistance space heating	Equal to slightly inferior	4-6 years	No	No
Upgrade of existing technology	• Premium efficiency motor	• Standard efficiency motor	Equal	3-5	No	Yes, but not for most efficient
	• Efficient chillers and ACs	• Less efficient chillers and ACs	Equal	3-5	No	Yes, but not for most efficient
	• Windows that reduce heat transfer	• Standard windows	Superior	6-10	Retrofit: No	Retrofit: No
					New Constr.: Yes	New Constr.: Yes
• Better insulated buildings and piping systems	• Less insulated buildings and piping systems	Superior	Varies	No	Yes, but not for most efficient	

Having presented these examples by way of illustration, we can envision two scenarios under which the market for efficiency upgrades might be transformed. If an upgraded product ever reaches a point in its development where no further efficiency improvements are possible, and its price is competitive with a non-efficient version, then the market can be transformed by convincing sellers to stock only the efficient product. But with technology improvements continuously possible, how often will this happen? For example, by 2006 the ENERGY STAR<sup>®</sup> criteria for efficient dishwashers became so inexpensive to implement that virtually every dishwasher available for sale was ENERGY STAR qualified. However, higher efficiency was possible, and DOE upgraded the ENERGY STAR criteria in January 2007, de-transforming the market and re-establishing a basis for public support.<sup>11</sup>

Efficiency standards and codes provide the second scenario in which the market for upgraded products might be transformed. Practice to date suggests, however, that standards have to satisfy many stakeholders and, therefore, result in efficiency improvements that are below what is technically achievable. Therefore, we do not envision standards and codes as feasible mechanisms that can eliminate the need for public support of energy-efficiency upgrades in the market.

### **Meeting Two Goals with One Program**

By broadening our scope of methods to include the range of product-life-cycle marketing tactics and by using market share as an overarching goal we can design programs that will be responsive to today's social drivers. The principles reviewed in this paper have taught the following:

- Flexibility—Use one set of marketing tactics to begin market-share growth. At an agreed-upon level of market share, change the implementation methodology to continue growth, then adjust tactics again as needed to sustain market share.
- Patience—Commit program time for market share to grow through multiple stages of the cycle.
- Persistence—Continue marketing until customers no longer ask for the inefficient models or until most product models for sale have the highest available level of efficiency.
- Curiosity—Learn what the traditional product life-cycle-marketing literature can offer us.

### **Accountability**

The ideas in this paper co-habit space with a very large elephant named evaluation. How do we account for the expenditure of public funds if we shift our focus to a market-share goal? We would have to measure sales or a proxy for sales. The authors hope to have an opportunity to address this issue in the near future with a paper describing how product sales have been measured in a number of energy-efficiency program evaluations.

### **Conclusion**

The energy efficiency industry is at a turning point in implementation brought about by circumstances that now ask the industry to satisfy both resource acquisition *and* market transformation goals. To accomplish this, we believe that the industry should reconsider these traditional goals to be phased objectives that are part of an overarching marketing strategy with growth in energy-efficiency

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<sup>11</sup> National ENERGY STAR<sup>®</sup> appliance sales data for 2007 were not available at the time of this writing; however, dishwasher sales data collected for NYSERDA's New York Energy \$mart<sup>SM</sup> Products Market Support Program showed a ten percent decline in ENERGY STAR market share from the last nine months of 2006 to June 2007 (NYSERDA 2007).

market share as its primary goal. To implement such a strategy, policy-makers and the industry should turn to traditional product life-cycle marketing principles to find tactics appropriate to each phase.

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